

Trend Study 4-6-01

Study site name: Harris Canyon.

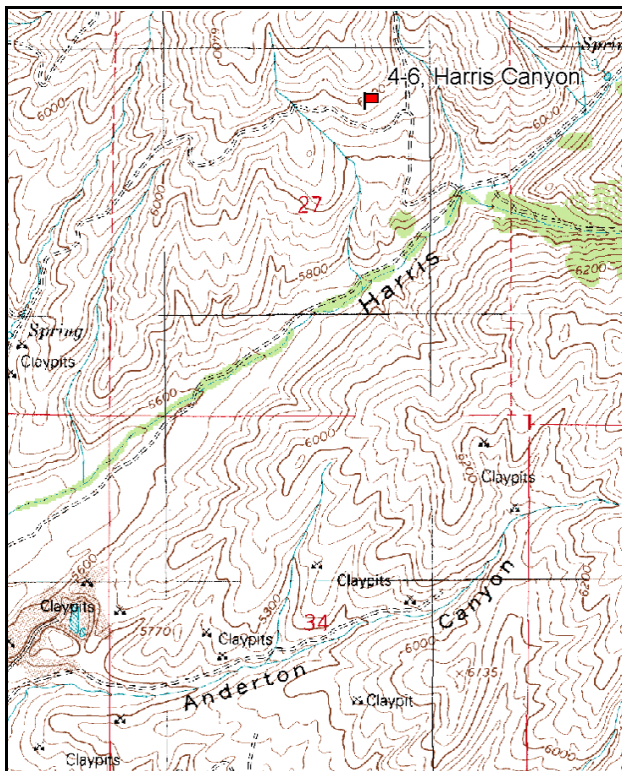
Vegetation type: Big Sagebrush-Grass.

Compass bearing: frequency baseline 164 degrees magnetic.

Frequency belt placement: Line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

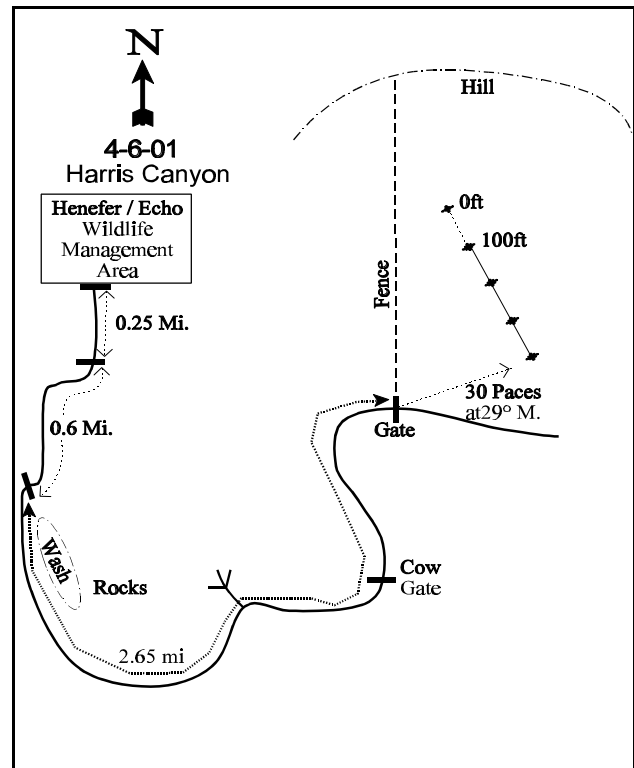
LOCATION DESCRIPTION

From the "R" Ranch main gate, proceed northwest for 3.5 miles (towards Croyden) to the Croyden access road. At the DWR/R-Ranch property, turn right and travel 0.25 miles. Turn right at the DWR fence line and proceed 0.6 miles to another gate. Stay to the right, traveling around a wash for 0.9 miles. Travel 1.2 miles to a cow gate. Continue for 0.4 miles to a fence with a gate. Stop here and park. From the gate walk 30 paces (at 29 degrees magnetic) to the 400-foot baseline stake. Walk 400 feet to the north at a bearing of 342 degrees magnetic to the 0-foot baseline stake. The 0-foot stake is marked by browse tag #7975.



Map Name: Henefer

Township 4N, Range 4E, Section 27



Diagrammatic Sketch

UTM 4544767 N 459759 E

DISCUSSION

Trend Study No. 4-6

The Harris Canyon study samples a mountain big sagebrush/grass type on a steep south facing slope (40%). Elevation is approximately 6,240 feet. Deer use has been exceptionally heavy in the past and shares much of the responsibility for the impact on the vegetative condition and trend. Frequency of deer pellet groups was moderate in 1996 and 2001. Elk pellet groups were also present in relatively small numbers in 1996, but nearly as abundant as deer pellet groups in 2001. Some cattle were observed near the study site during the 1996 reading. A pellet group transect read on site in 2001, estimated 79 deer and 22 elk days use/acre (195 ddu/ha and 55 edu/ha). Most elk and deer pellet groups appear to be mostly from spring use.

The soil is fairly deep in places but moderately rocky and of apparent alluvial origin. Most surface rocks are rounded and cobblestone-like. Soil texture is a clay loam with a neutral soil reaction (pH of 7.2). Effective rooting depth is estimated at a little over 12 inches. Due to the high rock content and south facing slope, soil temperature is relatively high at nearly 68°F at a depth of just over 12 inches. Phosphorus could also be a limiting factor with a value of only 6.9 ppm. Values less than 10 ppm have been shown to limit plant growth and development. Organic matter content is relatively high at 4%. Color of the surface soil is reddish, indicating some iron oxide content. Surface erosion does not appear excessive. The erosion condition class was determined to be slight in 2001.

Total browse density is well below optimum for this type of site. Although species composition includes four desirable shrubs, it also includes two aggressive invaders or increasers. The key species are mountain big sagebrush and antelope bitterbrush. Both were heavily browsed in 1984 and 1990. They also exhibited excessive levels of decadence and inadequate reproduction. Use of mountain big sagebrush was mostly light to moderate in 1996 and 2001. Vigor was normal on most plants and percent decadence has declined from 63% in 1984 to 21% in 2001.

Bitterbrush had an estimated density of 300 plants/acre in 2001. These shrubs have a prostrate growth form and average only 15 inches in height, yet they have a crown of almost 3 feet. They have been consistently heavily hedged, due in part, to their palatability and low numbers. Vigor is currently good on all plants sampled with no decadent plants sampled in 2001. White stem rabbitbrush offers some additional browse forage with a population estimated at 800 plants/acre in 2001. A few serviceberry plants also occur on the site.

Stickyleaf low rabbitbrush and broom snakeweed are both common on the site and have increased dramatically since 1984. Broom snakeweed appeared to have a dynamic population in 1996, with abundant seedlings and young. Due to the dry conditions of the past few years, it actually declined in density between 1996 and 2000. Stickyleaf low rabbitbrush also steadily increased in density until 1996. In 2001, density declined by 26%.

Understory composition is dominated by bluebunch wheatgrass which accounted for over 50% of the grass cover in 1996 and 2001. Annual grasses, Japanese brome, and cheatgrass, are also abundant. Other perennial grasses occur rarely. A fair number of forbs are also present, but only a few occur frequently. Among these are yellow salsify, Utah milkvetch, thistle, and Louisiana sage. Annual forbs and grasses are common, yet do not occur enough to constitute an obvious fire hazard. However, cheatgrass has that capability should range conditions continue to decline.

1984 APPARENT TREND ASSESSMENT

Soil conditions appear stable even though this area has a steep slope and relatively poor cover. In spite of this, evidence of rapid soil erosion is not predominant. Vegetative parameters appear to be declining. The most abundant of two key species is mountain big sagebrush which appears to be suffering from overuse and may decline in density.

1990 TREND ASSESSMENT

The relatively low density of big sagebrush in this stand has been heavily used winter range in the past. It remains in poor condition with heavily to severely hedged growth forms and 58% decadence. Precipitation data from Morgan indicate drier than normal conditions have existed since 1987. There was no seed production in 1990, but seedling and young plants currently make up 37% of the population. The seedlings have reduced vigor due to the prolonged drought conditions. Rubber rabbitbrush and low rabbitbrush are the most common browse plants and both have increased in density. Even the less desirable stickyleaf low rabbitbrush has been heavily hedged. Bitterbrush is infrequent and heavy hedging has led to a high percentage of decadent plants. Bluebunch wheatgrass is common but there is an excessive amount of bare soil.

TREND ASSESSMENT

soil - down (1)

browse - stable (3)

herbaceous understory - stable but dominated by annuals (3)

1996 TREND ASSESSMENT

Trend for soil is up due to a decline in percent bare ground from 30% to 5%. Litter cover also increased. Trend for browse is up for the two key species, mountain big sagebrush and antelope bitterbrush. Density of both species has increased. In addition, heavy use and percent decadence has declined, and vigor improved. Trend for the herbaceous understory is down slightly for grasses but slightly up for forbs. Nested frequency of bluebunch wheatgrass declined significantly. The increase in forb sum of nested frequency comes primarily from increases in frequency of weedy biennials such as yellow salsify, prickly lettuce, and Louisiana sage. Overall, trend for the herbaceous understory is considered slightly down.

TREND ASSESSMENT

soil - up (5)

browse - up (5)

herbaceous understory - slightly down (2)

2001 TREND ASSESSMENT

Trend for soil is down slightly due to a threefold increase in percent cover of bare ground and a decline in litter cover. There are some signs of past erosion on the site, but the erosion condition class was determined to be only slight in 2001. Trend for the key browse species, mountain big sagebrush and bitterbrush, is stable. Density of mountain big sagebrush has declined slightly due to a reduction in the number of young plants. However, utilization is light to moderate, vigor is normal on most plants, and percent decadence, although higher than 1996, is only moderate at 21%. Annual leader growth of sagebrush is 2.6 inches. All bitterbrush sampled display heavy use, but the population has remained fairly stable, vigor is normal on all plants, and there were no decadent plants sampled. Trend for the herbaceous understory is stable. Sum of nested frequency for perennial grasses increased slightly, while that of perennial forbs declined slightly. The

dominant grass, bluebunch wheatgrass, remained stable. Unfortunately, sum of nested frequency for annual grasses also remained stable. Another negative aspect of the herbaceous understory is the increase in the frequency of annual forbs. Annuals currently account for 69% of the forb cover and 39% of the grass cover.

TREND ASSESSMENT

soil - up (2)

browse - stable (3)

herbaceous understory - stable (3)

HERBACEOUS TRENDS --

Herd unit 04 , Study no: 6

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
G	Agropyron intermedium	3	2	5	7	1	1	2	3	.03	.33
G	Agropyron spicatum	_{ab} 218	_b 231	_a 182	_a 189	79	86	65	70	11.84	11.55
G	Bromus brizaeformis (a)	-	-	4	3	-	-	2	1	.01	.03
G	Bromus japonicus (a)	-	-	205	227	-	-	69	79	2.62	3.64
G	Bromus tectorum (a)	-	-	_b 267	_a 239	-	-	77	81	6.97	5.10
G	Elymus cinereus	-	-	-	4	-	-	-	1	-	.38
G	Festuca ovina	-	-	-	2	-	-	-	1	-	.03
G	Oryzopsis hymenoides	_a 4	_{ab} 16	_{ab} 11	_b 20	2	8	4	9	.36	.50
G	Poa pratensis	_b 17	_a 5	_a -	_a 2	6	2	-	1	-	.03
G	Poa secunda	_a -	_b 26	_a 6	_b 28	-	14	3	13	.06	.77
Total for Annual Grasses		0	0	476	469	0	0	148	161	9.60	8.77
Total for Perennial Grasses		242	280	204	252	88	111	74	98	12.31	13.61
Total for Grasses		242	280	680	721	88	111	222	259	21.92	22.39
F	Achillea millefolium	_b 7	_a -	_{ab} 6	_{ab} 2	5	-	3	1	.01	.15
F	Agoseris glauca	-	1	-	5	-	1	-	3	-	.01
F	Alyssum alyssoides (a)	-	-	_a 245	_b 304	-	-	85	96	1.12	6.27
F	Allium spp.	_a -	_a -	_a 4	_b 11	-	-	1	7	-	.03
F	Artemisia ludoviciana	_a 24	_a 23	_a 30	_b 68	9	11	12	26	.53	2.45
F	Aster chilensis	_b 15	_a 2	_a 1	_a 1	6	1	1	1	.00	.00
F	Astragalus spp.	_B 31	_a -	_a 7	_a -	16	-	3	-	.21	-
F	Astragalus utahensis	2	1	3	2	2	1	2	1	.03	.03
F	Castilleja linariaefolia	-	-	4	-	-	-	2	-	.18	-
F	Camelina microcarpa (a)	-	-	_a 2	_b 17	-	-	1	8	.00	.04
F	Cirsium undulatum	_b 23	_b 27	_b 16	_a 5	12	11	8	3	.21	.24
F	Collomia linearis (a)	-	-	-	2	-	-	-	2	-	.01
F	Collinsia parviflora (a)	-	-	10	7	-	-	4	4	.02	.07
F	Cryptantha spp.	_b 10	_a -	_a -	_a -	5	-	-	-	-	-

T y p e	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
F	Cymopterus spp.	a-	b8	ab3	ab2	-	5	1	1	.03	.03
F	Cynoglossum officinale	-	-	2	2	-	-	1	2	.00	.03
F	Descurainia pinnata (a)	-	-	-	9	-	-	-	3	-	.04
F	Erodium cicutarium (a)	-	-	a24	b77	-	-	11	29	.10	1.62
F	Hackelia patens	-	-	7	-	-	-	3	-	.04	-
F	Helianthus annuus (a)	-	1	-	-	-	1	-	-	-	-
F	Hedysarum boreale	-	7	2	6	-	3	1	3	.15	.04
F	Holosteum umbellatum (a)	-	-	a32	b130	-	-	14	51	.09	.60
F	Lactuca serriola	a-	a-	a6	b16	-	-	2	7	.01	.08
F	Lithospermum ruderae	6	6	-	-	2	2	-	-	-	-
F	Microsteris gracilis (a)	-	-	a-	b35	-	-	-	16	-	.20
F	Oenothera caespitosa	6	-	1	-	3	-	1	-	.03	-
F	Penstemon spp.	5	-	-	-	2	-	-	-	-	-
F	Ranunculus testiculatus (a)	-	-	-	3	-	-	-	1	-	.00
F	Streptanthus cordatus	-	2	-	-	-	1	-	-	-	-
F	Taraxacum officinale	-	-	-	2	-	-	-	1	-	.03
F	Tragopogon dubius	b134	a37	b96	a66	62	19	45	32	1.27	.48
F	Vicia americana	a-	a-	b52	b29	-	-	22	16	.65	.42
Total for Annual Forbs		0	1	313	584	0	1	115	210	1.34	8.88
Total for Perennial Forbs		263	114	240	217	124	55	108	104	3.39	4.06
Total for Forbs		263	115	553	801	124	56	223	314	4.74	12.94

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 04 , Study no: 6

T y p e	Species	Strip Frequency		Average Cover %	
		'96	'01	'96	'01
B	Amelanchier utahensis	4	1	.41	.15
B	Artemisia tridentata vaseyana	30	30	3.45	7.90
B	Chrysothamnus nauseosus albicaulis	37	31	1.99	5.21
B	Chrysothamnus viscidiflorus viscidiflorus	32	28	1.61	.95
B	Gutierrezia sarothrae	41	35	1.43	.75
B	Leptodactylon pungens	0	0	-	.15
B	Mahonia repens	4	5	.06	.27
B	Purshia tridentata	10	8	.69	.22
Total for Browse		158	138	9.66	15.61

BASIC COVER --

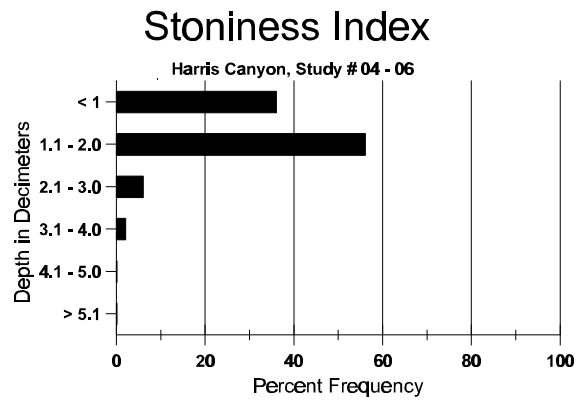
Herd unit 04 , Study no: 6

Cover Type	Nested Frequency		Average Cover %			
	'96	'01	'84	'90	'96	'01
Vegetation	340	369	2.25	10.00	40.52	52.22
Rock	241	249	19.00	16.50	13.25	18.04
Pavement	97	154	5.25	5.00	.59	.80
Litter	359	369	55.00	38.50	48.43	33.40
Cryptogams	49	22	0	0	.33	.14
Bare Ground	145	241	18.50	30.00	4.82	14.94

SOIL ANALYSIS DATA --

Herd Unit 04, Study no: 06, Harris Canyon

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
12.4	67.6 (12.3)	7.2	43.3	26.7	30.0	4.0	6.9	163.2	.8



PELLET GROUP FREQUENCY --

Herd unit 04 , Study no: 6

Type	Quadrat Frequency	
	'96	'01
Elk	4	20
Deer	25	22
Cattle	-	1
Sheep	-	-
Rabbit	-	-

Pellet Transect	
Pellet Groups per Acre '01	Days Use per Acre (ha) '01
287	22 (55)
1027	79 (195)
17	N/A
17	N/A

BROWSE CHARACTERISTICS --

Herd unit 04 , Study no: 6

A G R E	Y R E	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Amelanchier utahensis																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	1	1	-	-	-	-	-	-	-	2	-	-	40	27	28	2
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	48	29	0
D	84	-	-	1	-	-	-	-	-	-	-	-	1	-	33			1
	90	-	-	1	-	-	-	-	-	-	-	-	-	1	33			1
	96	-	1	-	1	-	-	-	-	-	-	2	-	-	40			2
	01	-	-	-	1	-	-	-	-	-	-	1	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			100%			100%			+ 0%							
'90		00%			100%			100%			+59%							
'96		50%			25%			00%			-75%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'84	33	Dec:	100%	
														'90	33		100%	
														'96	80		50%	
														'01	20		100%	

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata vaseyana																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	90	4	-	-	-	-	-	-	-	-	2	-	1	1			133	4
	96	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	01	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
Y	84	5	-	-	-	-	-	-	-	-	5	-	-	-	166		5	
	90	2	-	3	-	-	-	-	-	-	5	-	-	-	166		5	
	96	10	-	-	-	-	-	-	-	-	10	-	-	-	200		10	
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
M	84	-	1	1	-	-	-	-	-	-	2	-	-	-	66	6	6	2
	90	-	-	5	-	-	-	-	-	-	5	-	-	-	166	26	31	5
	96	21	6	-	1	-	-	-	-	-	28	-	-	-	560	25	44	28
	01	17	7	-	-	-	1	-	-	-	23	2	-	-	500	28	46	25
D	84	-	1	11	-	-	-	-	-	-	12	-	-	-	400		12	
	90	-	2	9	-	-	-	-	-	-	6	-	3	2	366		11	
	96	2	1	1	-	-	-	-	-	-	2	-	-	2	80		4	
	01	5	2	-	-	-	-	-	-	-	4	-	-	3	140		7	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	560		28	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	320		16	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		11%			63%			00%			+ 9%							
'90		10%			81%			24%			+17%							
'96		17%			02%			05%			-19%							
'01		26%			03%			09%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	632	Dec:	63%			
												'90	698		52%			
												'96	840		10%			
												'01	680		21%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus nauseosus albicaulis																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	84	-	-	1	-	-	-	-	-	-	1	-	-	-	33		1	
	90	23	-	-	-	-	-	-	-	-	23	-	-	-	766		23	
	96	7	4	-	-	-	-	-	-	-	11	-	-	-	220		11	
	01	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3	
M	84	-	-	4	-	-	-	-	-	-	4	-	-	-	133	36	27	
	90	1	1	-	-	-	-	-	-	-	2	-	-	-	66	40	52	
	96	37	8	-	-	-	-	-	-	-	45	-	-	-	900	22	35	
	01	11	8	3	-	-	2	-	-	-	22	2	-	-	480	25	34	
D	84	-	-	2	-	-	-	-	-	-	2	-	-	-	66		2	
	90	3	-	-	-	-	-	-	-	-	3	-	-	-	100		3	
	96	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3	
	01	6	4	2	1	-	-	-	-	-	8	-	-	5	260		13	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	40		2	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			100%			00%			+75%							
'90		04%			00%			00%			+21%							
'96		20%			00%			00%			-32%							
'01		30%			18%			13%										
Total Plants/Acre (excluding Dead & Seedlings)													'84	232	Dec:	28%		
													'90	932		11%		
													'96	1180		5%		
													'01	800		33%		

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus viscidiflorus viscidiflorus																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	1	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	1	4	-	-	-	-	-	-	-	-	2	-	166		5	
	96	12	-	-	-	-	-	-	-	-	-	-	-	-	240		12	
	01	3	-	-	-	-	-	-	-	-	-	-	-	-	60		3	
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	90	4	-	3	-	-	-	-	-	-	-	-	-	-	233	6	7	
	96	50	3	2	2	-	-	-	-	-	-	-	-	-	1140	11	57	
	01	43	1	-	3	-	-	-	-	-	-	-	-	-	940	9	47	
D	84	-	1	-	-	-	-	-	-	-	-	-	1	-	33		1	
	90	-	1	7	-	1	1	1	-	-	-	-	4	2	366		11	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	01	1	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		100%			00%			100%			+96%							
'90		13%			65%			35%			+45%							
'96		04%			03%			00%			-26%							
'01		02%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	33	Dec:	100%			
												'90	765		48%			
												'96	1380		0%			
												'01	1020		2%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Gutierrezia sarothrae																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	199	-	-	6	-	-	-	-	-	205	-	-	-	4100			205
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	4	-	-	-	-	-	-	-	-	4	-	-	-	133			4
	96	62	-	-	7	-	-	-	-	-	69	-	-	-	1380			69
	01	7	-	-	-	-	-	-	-	-	7	-	-	-	140			7
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	29	-	-	-	-	-	-	-	-	29	-	-	-	966	7	12	29
	96	55	-	-	2	-	-	-	-	-	57	-	-	-	1140	10	13	57
	01	95	-	-	1	-	-	-	-	-	95	1	-	-	1920	8	9	96
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	33			1
	96	4	-	-	-	-	-	-	-	-	-	-	-	4	80			4
	01	4	-	-	-	-	-	-	-	-	1	-	-	3	80			4
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	100			5
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%			+56%							
'96		00%			00%			03%			-18%							
'01		00%			00%			03%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	0%			
												'90	1132		3%			
												'96	2600		3%			
												'01	2140		4%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Mahonia repens																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	33	-	-	-	-	-	-	-	-	33	-	-	-	660		33	
	01	11	-	-	-	-	-	-	-	-	11	-	-	-	220		11	
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	01	154	-	-	-	-	-	-	-	-	154	-	-	-	3080	3	4	154
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%			+80%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-			
												'90	0		-			
												'96	660		-			
												'01	3300		-			
Purshia tridentata																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	1	-	-	-	-	-	-	-	1	-	-	-	33		1	
	96	-	1	-	-	-	-	-	-	-	1	-	-	-	20		1	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	84	-	-	2	-	-	-	-	-	-	2	-	-	-	66	15	15	2
	90	-	-	1	-	-	-	-	-	-	1	-	-	-	33	11	28	1
	96	-	7	8	2	-	-	-	-	-	17	-	-	-	340	16	29	17
	01	-	-	-	-	-	14	-	-	1	15	-	-	-	300	15	30	15
D	84	-	-	2	-	-	-	-	-	-	2	-	-	-	66			2
	90	-	-	3	-	-	-	-	-	-	-	-	1	2	100			3
	96	-	-	1	-	-	-	-	-	-	1	-	-	-	20			1
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			100%			00%			+20%							
'90		20%			80%			60%			+56%							
'96		42%			47%			00%			-21%							
'01		00%			100%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	132	Dec:	50%			
												'90	166		60%			
												'96	380		5%			
												'01	300		0%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Symphoricarpos oreophilus																		
M	'84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	'90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	'96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	15	22	0
	'01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'84			00%			00%			00%							
		'90			00%			00%			00%							
		'96			00%			00%			00%							
		'01			00%			00%			00%							
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-			
												'90	0		-			
												'96	0		-			
												'01	0		-			